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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/942,239	11/19/2007	Tushar Heramb Dhayagude	20275-0164001/SILIP109	1247

94166 7590 04/20/2017

Fish & Richardson PC / Atmel
P.O.Box 1022
Minneapolis, MN 55440

EXAMINER	
ABDIN, SHAHEDA A	

ART UNIT	PAPER NUMBER
2692	

NOTIFICATION DATE	DELIVERY MODE
04/20/2017	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TUSHAR HERAMB DHAYAGUDE, DILIP S, HENDRIK SANTO, and ANJAN SEN

Appeal 2016-006914
Application 11/942,239
Technology Center 2600

Before: MICHAEL J. STRAUSS, KARA L. SZPONDOWSKI, and DAVID J. CUTITTA II, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Non-Final Rejection of claims 1–6, 8–12, 16, and 21–25, which constitute all claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

STATEMENT OF THE CASE

Appellants' invention is directed to an apparatus and technique for modular electronic display control. Claim 1, reproduced below, is representative of the claimed subject matter:

1. A display comprising:

light emitting diodes (LEDs) arranged in a plurality of LED strings, wherein each LED string includes a plurality of LEDs, the plurality of LED strings divided among a plurality of sections of the display;

a system controller configured for controlling a timing of the display; and

a different local controller assigned to each section of the display and configured for controlling LED strings in the section of the display by:

receiving feedback signals from the plurality of LED strings included in the section;

based on receiving the feedback signals, selecting a lead string for the section from the plurality of LED strings, the lead string being a LED string with a highest forward voltage;

determining a current flowing through the lead string for the section; and adaptively adjusting a drive voltage that is provided to the plurality of LED strings in the section based upon the current flowing through the lead string, wherein

a reference signal from the system controller is utilized for synchronizing operation of the local controller with the system controller.

REJECTIONS

Claims 1, 3–6, 16, and 21–24 stand rejected under nonstatutory obviousness-type double patenting grounds as being unpatentable over claim 1 of Dilip S et al. (US 7,777,704 B2; issued Aug. 17, 2010) (hereinafter "the '704 Patent") and Archenhold et al. (US 2008/0191631 A1; published Aug. 14, 2008) (hereinafter "Archenhold").

Claims 1, 3–6, 11, 12, 16, and 21–25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Archenhold and Rader et al. (US 2005/0088207 A1; published Apr. 28, 2005) (hereinafter "Rader").

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Rader, Archenhold, and Maruyama et al. (US 2005/0243017 A1; published Nov. 3, 2005) (hereinafter "Maruyama").

Claims 2, 11, 12, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of the '704 Patent, Archenhold, and Rader.[1]

Claims 8–10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Archenhold, Rader, and Applicant Admitted Prior Art (Fig. 3) ("AAPA").

ANALYSIS

Obviousness-Type Double Patenting Rejections

Appellants argue "[t]he Office has made no attempt to articulate which features described in claim 1 of the '704 Patent are being compared to

[1] The Examiner withdrew this rejection in the Answer. Ans. 5.

which features recited in claim 1 of the present application, nor has the Office made any well-reasoned attempt to describe how claim 1 of the '704 Patent '*obviously teaches* most of the limitations as recited in claims 1, 16 and 21 of the instant application.'" App. Br. 9. Appellants further argue "the Office fails to explain why or how 'measured forward voltage' *id.* is broader than 'output parameter' *id.*" *Id.* at 10.

We agree with Appellants that the Examiner's rejection does not clearly explain or compare the instant claims with claim 1 of the '704 Patent. The key question in any obviousness double patenting analysis is: "Does any claim in the application define merely an obvious variation of an invention claimed in the patent asserted as supporting double patenting?" *General Foods Corp. v. Studiengesellschaft Kohle mbH*, 972 F.2d 1272, 1278 (Fed. Cir. 1992) (citing *In re Vogel*, 422 F.2d 438 (CCPA 1970)). Answering this question requires that the decision-maker first construe the claims in the patent and the claims under review and determine the differences between them. *Eli Lilly & Co. v. Barr Laboratories., Inc.*, 251 F.3d 955, 970 (Fed. Cir. 2001). After determining the differences, the decision-maker must determine whether the differences in subject matter render the claims patentably distinct. *Id.* Where the subject matter of a pending claim under review is an obvious variation of the subject matter of a patented claim, the pending claim is not patentably distinct. *In re Vogel*, 422 F.2d 438, 441 (CCPA 1970).

The Examiner has the initial burden of presenting a prima facie case of unpatentability. *In re Oetiker,* 977 F.2d 1443, 1445 (Fed. Cir. 1992). On this record, we are constrained to conclude that the Examiner has not met that burden. In particular, the Examiner fails to identify the specific

structures in claim 1 of the '704 Patent that correspond to the structures in the claims on appeal. For example, we agree with Appellants (App. Br. 10–12) that claim 1 of the '704 Patent does not discuss, *inter alia*, "each LED string includes a plurality of LEDs," "the plurality of LED strings divided among a plurality of sections of the display," "selecting a lead string for the section from the plurality of LED strings, the lead string being a LED string with a highest forward voltage" and "adaptively adjusting a drive voltage that is provided to the plurality of LED strings . . . based upon the current flowing through the lead string." *Id.* at 11. Although the difference in claim scope may not result in a patentable variation, the Examiner has not adequately explained why the instant claims are not patentably distinguishable from claim 1 of the '704 Patent as combined with Archenhold, and we do not substitute our own analysis for the Examiner. Due to the lack of proper analysis, we cannot sustain this rejection.

Accordingly, we do not sustain the obviousness-type double patenting rejection of claims 1, 3–6, 16, and 21–24 over claim 1 of the '704 Patent and Archenhold.

Obviousness Rejections under 35 U.S.C. § 103(a)

After consideration of each of Appellants' arguments, we agree with the Examiner in connection with the rejections under 35 U.S.C. § 103(a). We refer to and adopt the Examiner's findings and conclusions as set forth in the Examiner's Answer and in the action from which this appeal was taken. Ans. 5–9; *see also* Non-Final Act. 9–11. Our discussions here are limited to the following points of emphasis.

Appellants contend Archenhold does not disclose "the plurality of LED strings divided among a plurality of sections of the display." App. Br. 20. According to Appellants, "[t]he 'load drive section 4' described in the portions of Archenhold quoted . . . is part of 'an illumination control system 100' . . . included in 'lighting fixtures.'" *Id.*

The Examiner relies on LED load **15**, not load drive section **4**, to teach or suggest the sections of the display. *See* Non-Final Act. 9 ("the plurality of LED strings divided a plurality of sections (15) of the display"); *see also* Archenhold Figs. 4, 10. The Examiner relies on load drive section **4** to teach or suggest the claimed local controller. Non-Final Act. 9 ("a different local controller (4, Fig. 10)"). Accordingly, we are not persuaded of error because Appellants' arguments are not responsive to the Examiner's findings.

Appellants further contend Rader does not disclose "LED string [that] includes a plurality of LEDs." App. Br. 21. Specifically, Appellants argue "Rader discloses voltages and currents for individual LEDs, and not for any LED string." *Id.*

Although the Examiner finds, and we agree, that Rader teaches or suggests a plurality of LED strings, the Examiner relies on Archenhold, not Rader, to teach or suggest an "LED string [that] includes a plurality of LEDs." *See* Non-Final Act. 9–10; Archenhold Fig. 10, ¶ 117; and Rader Fig. 2. We agree with the Examiner that Archenhold teaches or suggests an LED string that includes a plurality of LEDs and, therefore, Appellants argument asserting deficiencies in the Rader reference are unpersuasive.

Appellants further contend Rader does not disclose "determining a current flowing through the lead string for the section." App. Br. 22.

Rather, Appellants argue "Rader discloses the use of 'predetermined current,' 'reference current,' and known or predetermined ratio/factor/multiple thereof, instead of having to determine 'current flowing through the lead string for the section.'" *Id.* at 23.

Rader describes the current control circuit **18** regulates the current flowing through LED **16** (I_{LED}). Rader ¶¶ 25, 26; *see also* Rader Fig. 2. Rader further describes that "[t]he desired current I_{LED} is a predetermined multiple of the reference current I_{REF} supplied by the current source 30 under user control." Rader ¶ 26. The current control circuit **18** controls LED current I_{LED} by altering the series resistance (and therefore the voltage drop across the current control circuit **18**). Rader ¶¶ 23, 25, and 26; *see also* Rader ¶ 38. Given that current control circuit **18** regulates and controls the current flowing through LED **16** as described, Appellants do not persuasively explain why desired current I_{LED} being a predetermined multiple of reference current I_{REF} precludes determination of the current flowing through the lead string for the section (I_{LED}).

Appellants further contend Rader does not disclose "adaptively adjusting a drive voltage that is provided to the plurality of LED strings . . . based upon the current flowing through the lead string." App. Br. 24 (emphasis omitted). Specifically, Appellants argue Rader discloses "driving the individual LEDs to one of several known voltage levels depending on the mode and switching between the modes based on a threshold voltage comparison." *Id.*

In addition to the disclosure described above, Rader describes that current control circuit **18** also "adjusts its series resistance to compensate for the unknown forward voltage drop of the LED **16**." Rader ¶ 25. The lowest

voltage drop across each current control circuit (which corresponds to the LED exhibiting the highest forward voltage drop), is compared to a threshold. Rader ¶ 23. If the voltage drops below the threshold, the power conditioning circuit **8** switches from battery mode to boost mode. *Id.*; *see also* Fig. 2.

Claim 1 recites "adaptively adjusting a drive voltage that is provided to the plurality of LED strings in the section based upon the current flowing through the lead string." The claim further recites "the lead string being a LED string with a highest forward voltage." Hence, the lowest voltage drop across each current control circuit corresponds to the lead string, as claimed. Given the well-known relationship between voltage and current in circuitry such as that covered by claim 1, we agree with the Examiner (Non-Final Act. 10) that the disclosure in Rader teaches or suggests adaptively adjusting a drive voltage that is provided to the plurality of LED strings in the section (Fig. 2, V_{OUT}) based upon the current flowing through the lead string (I_{LED}).

Appellants further contend the Examiner's rationale for combining Archenhold and Rader is "entirely redundant and without technical merit." App. Br. 19. Appellants argue "the Office has failed to identify any reasoning with some rational underpinning why the skilled artisan would use Rader's battery-powered circuits for LEDs in Archenhold's illumination control system for Light Emitters." *Id.*

We are not persuaded by Appellants' arguments, which do not adequately address the Examiner's findings. The Examiner finds one of ordinary skill would be motivated to combine the teachings to "provide a high efficient data transmission with improving power facility in the display device." Non-Final Act. 11. The Examiner's analysis is sufficient to

demonstrate use of a known technique from Rader to improve Archenhold's similar device in the same way, pursuant to *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), given that, *inter alia*, Appellants have not persuaded us that the combination is "uniquely challenging or difficult for one of ordinary skill in the art." *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 419).

Accordingly, we are not persuaded the Examiner erred in rejecting independent claims 1, 16, and 21 under 35 U.S.C. § 103(a), and, therefore, sustain those rejections. For the same reasons, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of dependent claims 2–6, 8–10, 11, 12, and 22–25, which are not argued separately.

DECISION

We reverse the Examiner's obviousness-type double patenting rejections of claims 1, 3–6, 16, and 21–24.

We affirm the Examiner's 35 U.S.C. § 103(a) rejections of claims 1–6, 8–10, 11, 12, 16, and 21–25.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED